U.S. Department of Transportation
Federal Highway Administration

Ontario

innovation ingenuity imagination invention
Every Day Counts

CM/GC – Ontario Perspective

Ministry of Transportation, Ontario, Canada

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Discussion Topics

Ontario

- Ontario Overview
- Alternative Contracting in Ontario
- CM/GC
  - Model Development
  - Experience to Date
  - Success Factors

Ontario Overview

Ontario

By the Numbers…

- **$2.75B**
  - 2013/14 capital budget
- **$2.23B**
  - Invested in highway construction
- **$400M**
  - Annual maintenance allocation
- **16,500**
  - km of provincial highways
- **2,800**
  - bridges

By the Numbers…

- **29**
  - Northern Remote Airports
- **26**
  - Service Centres
- **9**
  - Ferries
- **1**
  - Toll Hwy (407 ETR)

Service Delivery

Engineering and Planning / Design

- About 95% of Engineering and Design is delivered externally by consultants
- About 350 assignments / year; for e.g. planning and design, construction contract administration, area testing labs, bridge inspections, etc.

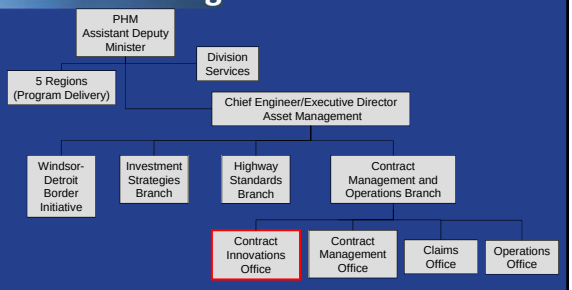
Construction

- All construction is delivered by external contractors
- About 450 contracts / year to contractors; about 150 major capital (major repair or expansion contracts), about 300 minor capital (e.g. crack and seal, small resurfacing contracts)
- Robust prequalification system (no bonding)

Procurement at MTO

- Government approval of budget allocation is based on a pooled list of projects (Expansion), and a list of Rehabilitation projects that can be managed by MTO within the overall Rehabilitation allocation
- MTO publishes a rolling 5 year list of Major Capital rehabilitation and expansion projects with flexibility in outer years
- 2-year list of Alternative Delivery Projects (ie. DB, CM/GC) provided to industry
- Use of alternative contacting models does not require legislative approvals. Decisions made internally within MTO

MTO's Provincial Highways Management Division



Contract Innovations Office

Mandate: To provide leadership, coordination and project management support for the implementation of innovative contract delivery models

Office consists of:
- Manager
- 2 Contract Innovation Engineers
- 5 Senior Analysts

CIO | Contract Innovations Office

Alternative Contracting

- Prior to 2010 virtually all projects delivered by Design-Bid-Build (DBB)
- P3 program for select Major Expansion works. (Windsor Border, Hwy 407 ETR)
- In 2009 embarked on Design-Build delivery
  - Advertised more than 40 projects since 2010
- In 2010 embarked on CM/GC delivery

Embarking on CM/GC

- MTO Senior Engineer attended presentation by Jim McMinimee at TRB in 2010
- MTO was in the early stages of design for a bridge replacement involving significant third party risks (Cultural, first nations, environmental)
- MTO recognized potential advantage of CM/GC model to leverage contracting industry expertise to help mitigate project risks; Foster Collaboration
- MTO consulted with Jim and assembled a CM/GC model development team in the spring of 2010
- First CM/GC contractor RFP (CM Services) advertised in January 2011

Why CM/GC?

- Constructability review throughout design
- Identify, assign and mitigate risk
- Realize alternate construction methods and innovation
- Give contractors a better understanding of the design process
- Contractor involvement in scoping of the work
- Fostering a collaborative environment
- Potential for acceleration of project schedule (design & construction) through collaboration and potential for advance works/procurement

Initial CM/GC RFP

Ontario

- Similar to Utah with changes to suit Ontario

Evaluation Criteria	Maximum Score	Required Minimum Score (60%)
CM Team Capability	10	6
Project Approach	25	15
Innovations/Alternative Construction Approach	10	--
CMGC Design Process	20	12
Approach to Price	25	15
TECHNICAL PROPOSAL SCORE	90	54
Price Proposal	10	
TOTAL SCORE	100	

Initial RFP cont'd

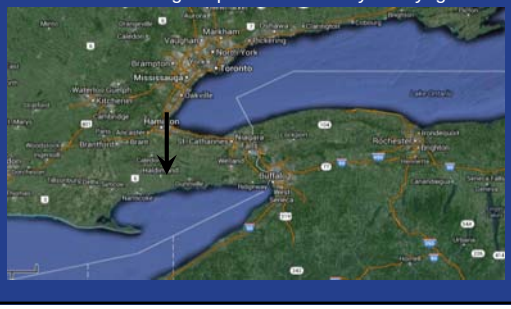
Ontario

- Price Elements provided from initial Price Proposal must be carried in final bid for construction unless a clear justification for change identified by project team (during design phase).
- Explain and Agree - after submission of bid for construction the MTO reserved the right to enter an review process with the CM contractor. Following this review process the MTO could request a revised bid.

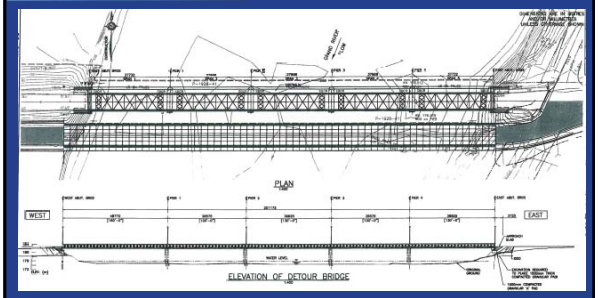
MTO Pilot Project

Ontario

Grand River Bridge replacement – Hwy 3 Cayuga



MTO Pilot Project



MTO Pilot Project

- Jack & Slide Approach

Industry (Early) Take-aways

(from MTO/ORBA workshop)

CM/GC Contractor - Dufferin Construction Company

- Time and Resource Commitment for senior staff
- Consistency in personnel is vital (scoping / risk discussions)
- Project Goals provide important guidance (eg. Traffic Management, Innovative/Alternative Construction Approach, Reasonable Cost, Reasonable Schedule)
- Open discussion is required to optimize risk transfer
- Early procurement for specific work elements can help advance project schedule (compared to DBB model)
- Trust!
- Continue to evaluate and improve the process
  - Advanced Pricing Phase – can help achieve best value and fair pricing

MTO Pilot Project

- Project Status
  - Currently in construction – forming deck, anticipated completion Summer 2015
- Project Highlights
  - Project schedule savings through advance contract to carry out in-water work prior to design completion
  - Jack and Slide approach avoided archeological impacts associated with use of modular bridge. Significant time and cost savings
  - Contractor involvement during design has facilitated partnering during construction and avoided costly claims

Challenges with Initial CM/GC RFP Requirements

- Closest to average scoring of Price Proposal does not reflect the culture of low bid procurement in Ontario
- Price must play a role in MTO procurements, as such a 10% weighting of Price Proposal deemed to be light
- Value of CMGC Design Process responses did not warrant section in RFP
- Perception that "Explain and Agree" review process after bidding may be considered a price "negotiation". Preference to be consistent with our bidding process for DBB and DB contract models – well established bid process integrity

Current CM/GC RFP

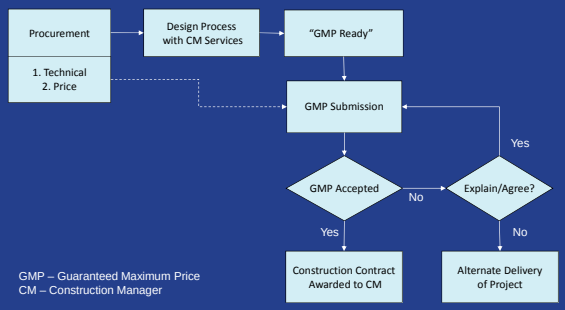
Evaluation Criteria	Maximum Score	Required Minimum Score (60%)
CM Team Capability	15	9
Project Approach	30	18
Innovations/Alternative Construction Approach	15	9
Approach to Price	25	15
TECHNICAL PROPOSAL SCORE	85	51
Price Proposal	15	
TOTAL SCORE	100	

- Price Proposal – 12% major project elements (low bid); 3% CM Services (closest to average)

Changes for Current RFP cont'd

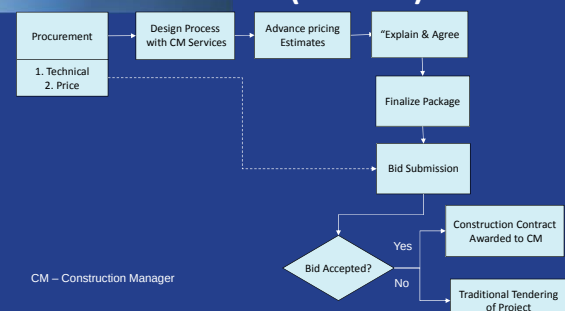
- Although MTO did see value in the post-bid review process, it was decided to remove the process. Bidding now follows standard MTO bidding process/practice
- To replace the post-bid review process, the MTO added a pricing review process in advance of the bidding phase (around 90% design). Ensures MTO still receives the value of process, while weakening perception of price negotiation.

High Level CM/GC Process (Original)



GMP – Guaranteed Maximum Price
CM – Construction Manager

High Level CM/GC Process (Current)



CM – Construction Manager

Changes to Consulting Engineer's RFP

- Description of CMGC model
- Additional meetings (partnering, scoping, support to "explain and agree")
- Requirement for designer to secure professional partnering facilitation services (Partnering Meeting)
- Price breakdown structure for CMGC (partnering, additional item for "late" package submission where anticipated)

Selection Panel and Process

- An MTO management steering committee assigns a Technical Evaluation Team (TET) for each project. Head Office (CIO) staff sit on all teams to promote provincial consistency
- Head Office (CIO) ensure raters are familiar with evaluation process (guideline established), and confidentiality agreements are signed by each team member.
- External independent process advisor (consultant) hired by MTO to provide fairness monitoring according to established evaluation process
- Presentations are provided to TET by each CM/GC Proponent (Not scored). Provides opportunity for RFP clarification & understanding for TET.
- Once Technical scores finalized, prices opened and final best value scores calculated.

Partnering Meeting

- Facilitator hired through the Consulting Engineer
  - Facilitator is required to be an independent party
- One-day partnering workshop held to establish the collaborative working relationship for CM/GC model
- All parties take part in workshop (CM/GC Contractor, Engineer, Owner)
  - Includes executive attendance of all parties
- Facilitator produces a Partnering Agreement which outlines the goals and objectives for the CM/GC project

MTO's Second Project

Ontario

Resurfacing Hwy 400 including Median Barrier and Sewer Replacements

MTO's Second Project

Ontario

Project Challenges

- High Traffic Volumes (AADT 100,000)
- Constricted Staging for Median Barrier and Sewer Replace
- Difficult Sub-surface conditions

MTO's Second Project

Ontario

- Project Status
  - Bidding for construction underway
- Project Highlights
  - Project schedule savings through project staging efficiencies
    - Leveraging labour and equipment resources
    - Moveable barrier to increase production
    - Advanced lateral sewer placements

Upcoming Projects

Interchange replacement – Hwy 401/Hwy 40
Grand River Bridge Replacement – Caledonia

Upcoming Projects

Interchange reconstruction – Hwy 401/Hwy 40

Grand River Bridge Replacement – Caledonia

Project Selection Matrix
DBB/DB/CMGC

ATTRIBUTE	DBB	DB	CMGC	PROJECT COMMENTS
Project Status	Advantages • Detail design can proceed without project construction being funded on the program. • Detail design can proceed without all approvals and property acquisition in place. Disadvantages	Advantages Disadvantages • Procurement of Design Builder and subsequent detail design cannot proceed without project funding for construction. • Project where detail design is largely underway may not be appropriate.	Advantages • Detail design can proceed without all approvals and property acquisition in place. Disadvantages • Procurement of the CM may be difficult without project construction being funded.	
Risk Management	Advantages • Provides historically well-defined and well-understood risk-management processes. • Prescriptive designs and specifications allow for greater detail in risk allocations. Disadvantages • Contractor cannot participate in risk management during design. • Constructor's ability to manage risk is constrained by low-bid procurement. • Owner may not be aware of risks inherent in the design. • Risk management can be more complex due to separate design.	Advantages • Little risk management required by owner. Disadvantages • Owner may lose some ability to participate in the risk-management process. • Owner may not be aware of all of the risks involved in the project, thereby resulting in higher costs and/or future claims.	Advantages • Construction manager understands and participates in risk-management process. • With contractor involvement, model allows for more in-depth analysis of the cost/schedule implication of risk. • Risk of design errors and omissions are mitigated through involvement of CM. Disadvantages	

CM/GC Lessons Learned & Critical Success Factors

- Choose the right projects:
  - Complex Utilities
  - Difficult Regulatory Issues
  - Complex Staging Requirements
  - Challenging Stakeholder Issues
  - Significant Scheduling Risks
  - Constructability Issues
  - Leverage Collaboration/Drive Innovation
- Strong Project Management Team
- Support from Senior Management
- Consultation with Industry

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Questions?

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